

**MAXIMUM SPECIFIC GRAVITY  
OF  
HOT MIX ASPHALT  
AASHTO T 209**

**APPARATUS**

- [ ] Volumetric Container
  - [ ] Capacity is at least 1000 ml
  - [ ] Small piece of fine wire mesh covering hose opening
- [ ] Verified thermometer with subdivisions and maximum scale error of 0.9°F
- [ ] Oven maintained at  $221 \pm 9^\circ\text{F}$
- [ ] Vacuum system capable of subjecting contents to a partial vacuum of 25.5 – 30 mm Hg
- [ ] Electric fan
- [ ] Arrangement of testing apparatus in accordance with Figure 1 (One or more filter flasks for a water vapor trap may be used)

**PROCEDURE**

- [ ] Weight of sample as follows (Samples larger than capacity of container may be divided into suitable increments, tested, and the results combined)

	<u>Nominal Maximum Aggregate Size</u>	<u>Minimum Weight of Sample (g)</u>
[ ]	1 1/2 in.	4000
[ ]	1 in.	2500
[ ]	3/4 in.	2000
[ ]	1/2 in.	1500
[ ]	3/8 in.	1000

- [ ] Particles of sample separated without fracturing aggregate (Sample may be placed in large pan and warmed in oven until workable)
- [ ] Fine aggregate particles not larger than 1/4 in.
- [ ] Dried to constant weight in oven at  $221 \pm 9^\circ\text{F}$
- [ ] Sample at room temperature
- [ ] Sample placed in tared container, weighed, and net weight determined
- [ ] Water at approximately 77°F added to cover sample completely
- [ ] Entrapped air removed using partial vacuum (25.5 - 30 mm Hg) for  $15 \pm 2$  min
- [ ] Container and contents agitated continuously by mechanical device, or manually by vigorous shaking at intervals of about 2 min
- [ ] Vacuum released with bleed valve by increasing pressure at a rate not to exceed 8 kPa per second

**Weighing in Air**

- [ ] Container filled with water
- [ ] Contents at  $77 \pm 1.8^{\circ}\text{F}$  or appropriate correction applied
- [ ] Weight of filled container determined  $10 \pm 1$  min after removal of entrapped air is completed
- [ ] Maximum specific gravity is calculated correctly to three decimal places (0.000) as follows:

Water at  $77 \pm 1.8^{\circ}\text{F}$

$$\text{Max. Sp. Gr.} = \frac{A}{A + D - E}$$

where:

A = weight of dry sample in air, g

D = weight of container filled with water, g

E = weight of container filled with water and sample, g

**Weighing in Water**

- [ ] Container and sample suspended in water bath and weight determined after  $10 \pm 1$  min.
- [ ] Container emptied immediately following the weighing of the container and sample
- [ ] Container suspended in water without delay and weight determined
- [ ] Maximum specific gravity calculated correctly to three decimal places (0.000) as follows:

$$\text{Max. Sp. Gr.} = \frac{A}{A - (C - B)}$$

where:

A = weight of dry sample in air, g

B = weight of container in water, g

C = weight of container and sample in water, g

**Supplemental Procedure**

- [ ] Sample spread before an electric fan to remove surface moisture
- [ ] Conglomerations of mixture broken by hand
- [ ] Sample stirred intermittently during drying
- [ ] Sample weighed at 15-minute intervals until surface dry (Note 1)

Note 1 -- Sample is considered surface dry when the loss in weight is less than 0.05 percent between 15-minute intervals

- [ ] Maximum specific gravity calculated correctly to three decimal places (0.000) as follows:

Water at  $77 \pm 1.8^{\circ}\text{F}$

Weighing in Air

$$\text{Max. Sp. Gr.} = \frac{A}{A_1 + D - E}$$

Weighing in Water

$$\text{Max. Sp. Gr.} = \frac{A}{A_1 - (C - B)}$$

where:

A = weight of dry sample in air, g

A<sub>1</sub> = weight of surface-dry sample, g

B = weight of container in water, g

C = weight of container and sample in water, g

D = weight of container filled with water, g

E = weight of container filled with water and sample, g

NA - Not Applicable

X - Requires Corrective Action

√ - Satisfactory

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Acceptance Technician

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INDOT

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Date

Comments 

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